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International Application No.
PCT/GB98/03622

Attorney Docket No.
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Date: June 5, 2000

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**TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 USC 371**

International Application No.: PCT/GB98/03622 ✓
International Filing Date: December 4, 1998 ✓
Priority Date Claimed: December 5, 1997 ✓
Title of Invention: MAILBOX ANSWERPHONE SERVICE FOR MOBILE
COMMUNICATIONS
Applicant(s) for DO/EO/US: Lester Evans, Neil Chapman

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. (X) This is a **FIRST** submission of items concerning a filing under 35 USC 371.
2. () This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 USC 371.
3. (X) This express request to begin national examination procedures (35 USC 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 USC 371(b) and PCT Articles 22 and 39(1).
4. (X) A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. (X) A copy of the International Application as filed (35 USC 371(c)(2))
 - a) () is transmitted herewith (required only if not transmitted by the International Bureau).
 - b) (X) has been transmitted by the International Bureau.
 - c) () is not required, as the application was filed in the United States Receiving Office (RO/US).
6. () A translation of the International Application into English (35 USC 371(c)(2)).
7. (X) Amendments to the claims of the International Application under PCT Article 19 (35 USC 371(c)(3))
 - a) () are transmitted herewith (required only if not transmitted by the International Bureau).
 - b) () have been transmitted by the International Bureau.
 - c) () have not been made; however, the time limit for making such amendments has NOT expired.
 - d) (X) have not been made and will not be made.
8. () A translation of the amendments to the claims under PCT Article 19 (35 USC 371(c)(3)).
9. () An oath or declaration of the inventor(s) (35 USC 371(c)(4)).
10. (X) A copy of the International Preliminary Examination Report with any annexes thereto, such as any amendments made under PCT Article 34.
11. () A translation of the annexes, such as any amendments made under PCT Article 34, to the International Preliminary Examination Report under PCT Article 36 (35 USC 371(c)(5)).

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Items 11. to 16. below concern other document(s) or information included:

- | | | |
|-----|-----|---|
| 12. | () | An Information Disclosure Statement under 37 CFR 1.97 and 1.98. |
| 13. | () | An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. |
| 14. | (X) | A FIRST preliminary amendment. |
| | () | A SECOND or SUBSEQUENT preliminary amendment. |
| 15. | () | A substitute specification. |
| 16. | () | A power of attorney and/or address letter. |
| 17. | (X) | International Application as published. |
| 18. | () | Small Entity Statement. |
| 19. | () | PCT Form PCT/ISPEA/402. |
| 20. | () | PCT Form PCT/IB/308. |
| 21. | () | PCT request form. |
| 22. | (X) | A return prepaid postcard. |
| 23. | (X) | The following fees are submitted: |

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				FEEs
BASIC FEE				\$840
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total Claims	22 - 20 =	2 ×	\$18	\$36
Independent Claims	6 - 3 =	3 ×	\$78	\$234
Multiple dependent claims(s) (if applicable)			\$260	\$0
TOTAL OF ABOVE CALCULATIONS				\$1110
Reduction by 1/2 for filing by small entity (if applicable). Verified Small Entity statement must also be filed. (NOTE 37 CFR 1.9, 1.27, 1.28)				\$0
TOTAL NATIONAL FEE				\$1110
TOTAL FEES ENCLOSED				\$1110
amount to be refunded:				\$0
amount to be charged:				\$0

24. (X) The fee for later submission of the signed oath or declaration set forth in 37 CFR 1.492(e) will be paid upon submission of the declaration.
25. (X) A check in the amount of \$1110 to cover the above fees is enclosed.
26. () Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40 per property.
27. (X) The Commissioner is hereby authorized to charge only those additional fees which may be required, now or in the future, to avoid abandonment of the application, or credit any overpayment to Deposit Account No. 11-1410. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

KNOBBE, MARTENS, OLSON & BEAR, LLP
620 Newport Center Drive
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Signature

John M. Carson

Printed Name

34,303

Registration Number

RJENK14.001APC

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Lester Evans, et al.

) Group Art Unit Unknown

Appl. No. : Unknown

) I hereby certify that this correspondence and all
) marked attachments are being deposited with
) the United States Postal Service as first-class
) mail in an envelope addressed to: Assistant
) Commissioner for Patents, Washington, D.C.
) 20231, on

Filed : Herewith

For : MAILBOX ANSWERPHONE
SERVICE FOR MOBILE
COMMUNICATIONSJune 5, 2000
(Date)

John M. Carson, Reg. No. 34,303

Examiner : Unknown

PRELIMINARY AMENDMENTAssistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Prior to examination of the above-captioned application, please amend the application as follows:

IN THE SPECIFICATION:

Please amend the specification as follows. The amendments are made with respect to the published PCT application (PCT/GB98/03622).

On page 1, line 2, please insert --Field of the Invention--.On page 1, between lines 7 and 8, please insert --Background of the Invention--.On page 5, between lines 4 and 5, please insert --Summary of the Invention--.On page 7, between lines 6 and 7, please insert --Brief Description of the Drawings--.On page 8, immediately before line 1, please insert --Detailed Description of the Invention--.

On page 15, line 1, please replace "CLAIMS" with --WHAT IS CLAIMED IS--.

IN THE CLAIMS:**Please cancel Claims 1-22, without prejudice.****Please add the following new Claims 23-44:**

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23. A method of providing a mailbox answerphone service to a caller in a mobile communications system during a call directed to a directory number used commonly by different subscribers to access their mailboxes, comprising:

providing an identification code identifying a mailbox associated with a subscriber through an identification code through an answerphone service; and

entering either a first mode of answerphone operation or a second, different, mode of answerphone operation in dependence on information received during call establishment indicating whether the call is of international origin.

24. The method according to Claim 23, further comprising in said first mode of operation, if the call is not diverted, providing a message retrieval service, and if the call is diverted, providing a message deposit service.

25. The method according to Claim 24, further comprising determining whether the call is diverted using information received during call establishment.

26. The method according to Claim 23, further comprising providing in said second mode of operation either a message deposit service or a message retrieve service in dependence of a receipt of a selection indicator from said caller during the call.

27. The method according to Claim 26, further comprising in said second mode prompting said caller, after inputting said identification code during the call, for a voice message to be received and stored, and providing said message retrieve service if said indicator is received from said user.

28. The method according to Claim 26, wherein said indicator comprises a DTMF tone.

29. The method according to Claim 23, further comprising prompting said caller for said identification code if said identification code is otherwise not associated with the call when received.

30. The method according to Claim 23, wherein said identification code corresponds to a directory number of said subscriber.

31. The method according to Claim 23, further comprising identifying a call of international origin through an international origin indicator in signaling associated with the call.

32. The method according to Claim 23, further comprising:

associating the call with a divert flag, a calling line identity (CLI) signal, and an international origin indicator;

setting said divert flag if the call is diverted from a mobile station to said apparatus and said mobile station is located within a coverage area of said mobile communications system;

associating said CLI signal with the call if the call originates or is diverted from a mobile station within said coverage area and said mobile station is preset to transmit said CLI signal; and

associating said international origin indicator with the call if the call originates or is diverted from a mobile station and said mobile station is used at a location causing said international origin indicator to be sent to said mobile communications system during call establishment.

33. The method according to Claim 32, further comprising providing a message deposit service to said caller if said divert flag is set, and prompting in said message deposit service said caller for a voice message to be received and stored.

34. The method according to Claim 32, further comprising providing a message retrieve service to said caller if said divert flag is not set and said CLI is associated with the call, or said divert flag is not set, said CLI signal is not associated with the call, and identification code is received from said caller during the call, and in said retrieve service a stored voice message is retrieved and provided to said caller.

35. A method of providing a mailbox answerphone service to a caller in a mobile communications system during a call directed to a directory number used commonly by different subscribers to access their mailboxes, comprising:

Identifying, through an answerphone service, a mailbox associated with a subscriber identification code; and

automatically entering either a first mode of answerphone operation if the call is of national origin or a second, different mode of answerphone operation if the call is of international origin.

36. The method according to Claim 35, further comprising deriving the origin of the call using information received during call establishment.

37. The method according to Claim 35, further comprising using said common directory number by all subscribers to access said answerphone service.

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38. A method of providing a mailbox answerphone service to a caller in a mobile communications system, wherein said answerphone service identifies a mailbox associated with a subscriber by way of an identification code, said method comprising:

receiving a call from a mobile handset, the call being directed to a directory number used commonly by different subscribers to access their mailboxes;

allowing said caller to input a selection indicator during the call; and

(a) if said indicator is not received, detecting a first identification code associated with said mobile handset from information received during call establishment and providing a message retrieve service to allow the caller to retrieve messages from the mailbox associated with said first identification code; or

(b) if said indicator is received, allowing the user to input a second identification code and providing a message retrieve service to allow the caller to retrieve messages from the mailbox associated with said second identification code.

39. The method according to Claim 38, wherein each of said identification codes corresponds to a directory number of a different subscriber.

40. The method according to Claim 38, further comprising prompting said caller for a security code associated with the mailbox being accessed.

41. The method according to Claim 38, wherein said indicator comprises a DTMF tone code.

42. A voice processing system for a mobile communications system, adapted to identify a mailbox associated with a subscriber by way of an identification code processed through an answerphone service, to enter either a first mode of answerphone operation or a second, different, mode of answerphone operation in dependence on information received during call establishment indicating whether the call is of international origin.

43. An apparatus for use in a mobile communications system, said apparatus being adapted to store messages for subsequent retrieval by a subscriber of the mobile communications system wherein said apparatus is adapted to identify a first subscriber making a call to retrieve a message by means of an identification signal automatically forwarded to said apparatus during call establishment, said signal identifying the equipment being used by said subscriber, and wherein said apparatus is further adapted to identify a second subscriber, on receipt of a request

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from said second subscriber during the call, by way of other information supplied by said second subscriber during the call.

44. An apparatus for use in a mobile communications system, said mobile communications system being arranged to establish a communications link with said apparatus in response to a call by a user, said apparatus being responsive during the call to receipt of a response selection indicator, and to receipt of a number of identification codes each being associated with a different mobile subscriber, wherein said apparatus is arranged to select one of said mobile subscribers and/or to select one of a plurality of predetermined responses if said response selection indicator is received, and otherwise to automatically provide a particular response relating to one of said mobile subscribers.

REMARKS

The foregoing amendments are to more closely conform the application to U.S. practice. No new matter is added. Entry of the amendments is respectfully requested.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 6/5/00

By: 

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MAILBOX ANSWERPHONE SERVICE FOR MOBILE COMMUNICATIONS

This invention relates to mobile communications, and more particularly but not exclusively to apparatus for use in a mobile communications system such as a GSM (Global System for Mobile communications) digital cellular radio network, and to a method of providing a message service to a user of such a mobile communications system.

A conventional GSM network is schematically illustrated in Figure 1. A mobile switching centre (MSC) 2 is connected via communication links to a number of base station controller (BSCs) 4. The BSCs 4 are dispersed geographically across areas served by the mobile switching centre 2. Each BSC 4 controls one or more base transceiver stations (BTSs) 6 located remote from, and connected by further communication links to, the BSC 4. Each BTS 6 transmits radio signals to, and receives radio signals from, mobile stations 8 which are in an area served by that BTS 6. That area is referred to as a "cell". A GSM network is provided with a large number of such cells, which are ideally contiguous to provide continuous coverage over the whole network territory.

A mobile switching centre 2 is also connected via communication links to other mobile switching centres in the remainder of the mobile communications system 10, and to a public service telephone network (PSTN), which is not illustrated. The mobile switching centre 2 is provided

with a home location register (HLR) 12 which is a database storing subscriber authentication data including the international mobile subscriber identity (IMSI) which is unique to each mobile station 8. The IMSI is also stored in the mobile station in a subscriber identity module (SIM) along with other
5 subscriber-specific information.

The mobile switching centre 2 is also provided with a visitor location register (VLR) 14 which is a database temporarily storing subscriber authentication data for mobile stations which are active in the area served by the mobile switching centre 2.

10 The mobile switching centre 2 may also be provided with a subscriber location register (SLR) 18 which is a database storing data relating the HLRs and VPSs of the network with the network's subscribers.

The GSM network supports a variety of services. One such service is an answerphone service. The answerphone service, among other services, is
15 implemented on a Voice Processing System (VPS) 16. The VPS 16 is linked to the mobile switching centre 2. Incoming calls to the MSC 2 which are not answered by a called subscriber are automatically forwarded to the VPS 16. Figure 1 only illustrates a single VPS 16. However, a mobile communications network generally comprises several VPSs 16 each serving a
20 plurality of subscribers. Various implementations of the answerphone service are possible, of which one example is described below.

In the implementation which this invention concerns, the answerphone service is accessed by means of one or more directory numbers which may be called by all, or at least a plurality of, subscribers, and possibly non-subscribers, to access the service (hereinafter referred to as "common
5 telephone numbers of the answerphone service"). For a subscriber, the common number may be dialled manually, or generated by the handset itself on the subscriber pressing a "dial answerphone option".

In other implementations, each subscriber is provided with two directory numbers, one identifying the subscriber's handset and the other
10 identifying the subscriber's mailbox. If a call is made to the number identifying the subscribers mailbox, the subscriber is allowed to access their messages, if any, sometimes subject to entry of a personal PIN code for the subscriber.

The answerphone service provides a personal mailbox for each
15 subscriber to the answerphone service. When a call is forwarded to a subscriber's mailbox, a personal message of the subscriber is played to the caller. The caller may then leave a voice message in the mailbox. The subscriber is notified by a GSM short message that a message has been deposited in the subscriber's mailbox. The subscriber can then access his/her
20 mailbox in order to retrieve the message.

A call to the subscriber which is not answered is automatically forwarded to the answerphone service and the called subscriber's telephone

number is used to access the subscriber's mailbox. However, a call to the subscriber may not only be forwarded if the called subscriber is busy, out of coverage or does not answer, but also if the subscriber's elects, via an option on the handset, to have the call forwarded to his mailbox. Such a call is referred to as a conditionally diverted call. The subscriber can elect which calls, i.e. the calls from which callers, are to be diverted. The subscriber sets on the handset a telephone number where a call is to be diverted to. That telephone number may be a telephone number which subscribers commonly use to access the answerphone service.

The directory number (MSISDN) of the subscriber to which the call is directed is transmitted as the CLI (calling line identity) on diversion of a call from the subscriber's handset. The CLI, being unique for each subscriber, can be used by the VPS to access the subscriber's mailbox.

If a subscriber wants to access the answerphone service in order to retrieve a message from his/her mailbox, the subscriber dials the common telephone number of the answerphone service on his/her handset. The retrieval call can be automatically forwarded to the subscriber's mailbox by using the CLI. An incoming retrieval call can be distinguished from a conditionally diverted call by the lack of a divert flag which is set on diversion and transmitted to the answerphone service.

If a subscriber wants to access his/her mailbox from abroad, i.e. outside the coverage area of the home network (referred to as a "roaming")

subscriber), the call is directed to the answerphone service via the visited network. However, no CLI is transmitted and the subscriber is not forwarded automatically to his/her mailbox. Rather, the mailbox number has to be entered manually to identify the mailbox from which a call is to be retrieved.

5 According to one aspect of the present invention, there is provided a method of providing a mailbox answerphone service to a caller in a mobile communications system during a call directed to a directory number used commonly by different ones of the system's subscribers to access their mailboxes, wherein said answerphone service identifies a mailbox associated
10 with a subscriber by means of an identification code, said method comprising: entering either a first mode of answerphone operation or a second, different, mode of answerphone operation in dependence on information received during call establishment indicating whether said call is of international origin.

15 If a subscriber is roaming, a conditionally diverted call is forwarded to the home network via a visited network using the common number for the answerphone service.

 Using the present invention, a conditionally diverted call of international origin can be distinguished from an international retrieval call
20 even though the visited network may not transmit a divert flag. In an embodiment of the invention, an incoming international conditionally diverted call may initially automatically be treated in the same manner as an incoming

international retrieval call. the caller may enter an indicator when message deposit is desired or vice-versa.

The CLI is generally lost when a call originating in a visited network is transmitted to the home network. Accordingly, though a diverted call is forwarded to the answerphone service using the international diversion number, the subscriber's mailbox cannot be accessed automatically by the VPS without the CLI. With an embodiment of the present invention, the user enters the required identification code for the VPS to access the subscriber's mailbox.

According to a further aspect of the invention there is provided a method of providing a mailbox answerphone service to a caller in a mobile communications system, wherein said answerphone service identifies a mailbox associated with a subscriber by means of an identification code, said method comprising: receiving a call from a mobile handset, said call being directed to a directory number used commonly by different subscribers to access their mailboxes; allowing said caller to input a selection indicator during said call; and (a) if said indicator is not received, detecting a first identification code associated with said mobile handset from information received during call establishment and providing a message retrieve service to allow the caller to retrieve messages from the mailbox associated with said first identification code, or (b) if said indicator is received, allowing the user to input a second identification code and providing a message retrieve service

to allow the caller to retrieve messages from the mailbox associated with said second identification code.

A subscriber is thus able to use another subscriber's handset to retrieve a message from his/her mailbox, whilst the retrieval call is otherwise
5 automatically forwarded to the mailbox associated with the subscriber of the used handset.

An embodiment of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a block diagram of a mobile communications network;

10 Figure 2 is a flow diagram showing an overview of steps taken by a VPS when receiving a call in accordance with the embodiment of the present invention;

Figure 3 is a flow diagram showing steps taken by a VPS when in a normal deposit mode in accordance with the embodiment of the present
15 invention;

Figure 4 is a flow diagram showing steps taken by a VPS when in a normal retrieve mode in accordance with the embodiment of the present invention; and

Figure 5 is a flow diagram showing steps taken by a VPS when in an
20 international mode in accordance with the embodiment of the present invention.

Figure 1 shows a conventional mobile communications network. The mobile communications network is described in detail hereinabove and will not be repeated. The answerphone service and the service module in accordance with the embodiment of the present invention are implemented on the VPS 16. However, alternatively, the service module may also be provided outside the VPS 16 as a separate station with links to the VPS 16 and the MSC 2.

Figure 2 illustrates the steps taken by the service module in the VPS 16 when processing a call directed to a common telephone number of the answerphone service. After a call is received in step 20, the service module checks in step 22 whether the incoming call is a diverted call, i.e. whether a divert flag in the communications protocol from the MSC 2 is set. Such information is generally only available in the signalling associated with a call if the subscriber uses his/her handset within the home network area, i.e. if the subscriber's handset communications with the MSC 2 via the BTSs 6 and the BSCs 4 rather than via a visited network. In the case of a set divert flag, the service module proceeds to the normal deposit mode in step 24 as is described hereinbelow in connection with Figure 3. If the divert is not set, the service module checks in step 26 whether the incoming call is provided with the CLI information. If this is the case, it can be assumed that the caller is a subscriber who calls from inside the home network (the CLI is not passed over the international interconnect signalling links) and wishes to retrieve a message

from the answerphone service. Accordingly, the service module proceeds to the normal retrieval mode at step 28 which is described in connection with Figure 4, identifying the mailbox from the subscriber's CLI.

If the CLI is not present, the service module checks in step 30 whether
5 the number of the mailbox (the directory number of the subscriber having the mailbox) to be accessed is known. This may be the case if the mailbox number was previously entered by the caller (a procedure to be described below) and the call subsequently is diverted to another VPS due to a call drop back. This is because, in this embodiment, a single VPS does not provide the
10 answerphone for all subscribers. Rather, each of a plurality of VPSs provides the answerphone for a subset of all subscribers. In a situation where a call is forwarded to a VPS to be proceeded to the answerphone service although the mailbox to be accessed is managed by another VPS, the current VPS identifies the correct VPS via the SLR 18 and MSC 2 and redirects the call to
15 the correct VPS. appending the mailbox number to the destination address, the routing number of the correct VPS forming the prefix of that address. Situations where a call drop back may occur are described hereinafter.

Accordingly, in the case of a call drop back, the mailbox number is contained in the destination address specified in signalling associated with the
20 call. In this case, the service module proceeds to step 32 and checks whether the caller is abroad, i.e. whether the signalling associated with the call indicates a call of international origin. An international call is then processed

in the international mode at step 34, whereas a national call is processed in the normal retrieval mode at step 36. The service module proceeds the call to step 36 if a call by a subscriber to the common number of the answerphone service from a national phone other than his/her handset, and for which the CLI is
5 unavailable, is redirected to another VPS due to a call drop back.

If no mailbox number is detected in step 30, the service module generates a prompt in step 38 for the caller to enter into his/her telephone the number of the mailbox to be accessed. There are three types of incoming calls that are processed in step 38. The first type is a call originated abroad to the
10 common number of the answerphone service from a subscriber who wishes to retrieve a message from the answerphone service. The second type is a call to a subscriber abroad, which call is diverted to the answerphone service via a visited network which does not pass the divert flag or provide the CLI in the signalling sent over the interconnect links. The third type is a call to the
15 common number of the answerphone service of national origin from a subscriber using a phone other than his/her handset, and for which the CLI is unavailable, first being processed by a VPS.

After reception of a number which has been entered by the caller into his/her telephone in step 40, the service module checks in step 42 whether the
20 entered number is a valid mailbox number. If no valid mailbox number has been entered, the service module returns to step 38. Otherwise, the service module proceeds to step 43 and checks whether the mailbox corresponding to

the entered mailbox number is managed by a different VPS and, in that case, causes a call drop back at step 44. If the mailbox is managed by the same VPS, the origin (whether international or national) of the call is checked by determining whether the international origin flag is set in the signalling
5 associated with the call, step 45. If the call is of international origin, the call is processed in international mode, step 46. Otherwise, the call is processed in normal retrieval mode, step 48.

Figure 3 shows the steps taken by the service module in the normal deposit mode. A set divert flag at step 22 in Figure 2 indicates that a call has
10 arrived at a subscriber's handset within the home network area but has subsequently been diverted to the VPS. However, the subscriber's CLI is not necessarily available since the subscriber has the option to preset his/her handset not to transmit the CLI. Accordingly, the service module checks in step 50 whether the CLI is available. If the CLI is available, the CLI is used
15 in step 52 to identify the subscriber's mailbox number. If no CLI is available, the service module prompts the caller in step 54 to enter the mailbox number, receives the mailbox number in step 56 and verifies in step 58 whether a valid number has been entered. The identified/entered mailbox number is used to access the subscriber's mailbox in step 60. The service module then plays a
20 personal deposit message by the subscriber to the caller in step 62 and receives a voice message from the caller in step 64.

Figure 4 shows the steps taken by the service module in the normal retrieval mode. The service module proceeds to the normal retrieval in three cases. The first and second case are shown in Figure 2. In the first case, the received call is not diverted and is provided with the CLI, this being the
5 directory number of the handset from which the call is made. Accordingly, in this case, the call has a national origin and is directed to a common telephone number of the answerphone service. The second case results if a subscriber has entered his/her mailbox number to access his/her mailbox via a national telephone call to a common telephone number of the answerphone service
10 from a telephone other than his/her handset.

The normal retrieval mode starts with the playing of a retrieval message to the caller in step 66. The retrieval message may comprise a retrieval message which allows the user to select from various services such as the retrieval of particular ones of the messages on a subscriber's mailbox,
15 the deletion of messages, etc. If the star key of the caller's telephone is pressed during the playing of the retrieval message as indicated at step 68, the service module proceeds to step 70 and prompts the user to enter a mailbox number (the directory number of the subscriber having the mailbox) which is desired to be accessed. The service module receives a number in step 72 and
20 checks in step 74 whether the entered number is a valid mailbox number. If the entered number is invalid, the service module returns to step 70. Otherwise, it checks in step 76 whether the mailbox associated with the

entered mailbox number is provided in the current or in a different VPS. In the former case, the service module returns to step 66. In the latter case, the service module initiates a call drop back in step 78.

If the star key has not been pressed in step 68, the service module
5 checks in step 80 whether a mailbox number is available. Only if no mailbox number is available, the CLI (the directory number associated with the handset being used) is used to obtain the mailbox number in step 82. This is to prevent that a wrong mailbox is accessed if a subscriber uses another subscriber's handset to access his/her mailbox, namely the mailbox associated
10 with the CLI and not the mailbox associated with an entered mailbox number. In step 84, the service module prompts the caller to enter a PIN code in order to get authorised access to a mailbox. The PIN code is received in step 86. If the star key is pressed at this stage in step 87, the service module proceeds to step 70. Otherwise, the entered PIN code is checked for validity in step 88.
15 Step 84 is repeated if the entered PIN code is invalid, whereas the mailbox is accessed in step 90 on entry of a valid PIN code. The service module then proceeds to step 92 and plays the message to be retrieved to the calling subscriber.

Figure 5 illustrates the steps taken by the service module in the
20 international mode. The international mode either provides for the deposit of messages for a subscriber by a caller, or for the retrieval of messages by a subscriber. Due to a lack of information in the international signalling, the

two cases are distinguished by DTMF input by the subscriber on connection of the call to the answerphone service.

In step 94, a mailbox is accessed by using the mailbox number which previously had to be entered. The service module then plays a personal deposit message by the subscriber in step 96. If during this time the star key of the used telephone is pressed, the service module proceeds to the normal retrieval mode in step 100. Otherwise, the service module receives and stores a message from the caller in step 102.

It should be noted that the present invention is not limited to the embodiment as described hereinabove. In particular, the steps taken by the service module may well be applied in a different order. It is envisaged that various modifications and variations to the above described embodiment could be made, without falling outside the scope of the present invention which is to be determined from the appended claims.

CLAIMS:

1. A method of providing a mailbox answerphone service to a
5 caller in a mobile communications system during a call directed to a directory
number used commonly by different ones of the system's subscribers to
access their mailboxes, wherein said answerphone service identifies a mailbox
associated with a subscriber by means of an identification code,

characterised in that said method comprises:

10 entering either a first mode of answerphone operation or a second,
different, mode of answerphone operation in dependence on information
received during call establishment indicating whether said call is of
international origin.

15 2. A method according to claim 1, comprising in said first mode
of operation, if said call is not diverted, initially providing a message retrieval
service, and if said call is diverted, initially providing a message deposit
service.

20 3. A method according to claim 2, wherein whether or not said
call is diverted is determined from information received during call
establishment.

4. A method according to claim 1, 2 or 3, comprising in said second mode of operation providing either a message deposit service or a message retrieve service in dependence on the receipt of a selection indicator from said caller during said call.

5. A method according to claim 4, wherein in said second mode said caller, after inputting said identification code during said call, is initially prompted for a voice message to be received and stored, and said message retrieve service is provided if said indicator is received from said user.

6. A method according to claim 4 or 5, wherein said indicator comprises a DTMF tone.

7. A method according to any preceding claim, comprising prompting said caller for said identification code if said identification code is otherwise not associated with said call when received.

8. A method according to any preceding claim, wherein said identification code corresponds to a directory number of said subscriber.

9. A method according to any preceding claim, wherein a call of international origin is identified by means of an international origin indicator in signalling associated with said call.

5 10. A method according to claim 1, wherein said call is associable with a divert flag, a calling line identity (CLI) signal, and an international origin indicator, wherein said divert flag is set if said call is diverted from a mobile station to said apparatus and said mobile station is located within a coverage area of said mobile communications system, said CLI signal is
10 associated with said call if the call originates or is diverted from a mobile station within said coverage area and said mobile station is preset to transmit said CLI signal, and said international origin indicator is associated with said call if said call originates or is diverted from a mobile station and said mobile station is used at a location causing said international origin indicator to be
15 sent to said mobile communications system during call establishment.

11. A method according to claim 10, wherein a message deposit service is initially provided to said caller if said divert flag is set, and in said
20 message deposit service said caller is prompted for a voice message to be received and stored.

12. A method according to claim 10 or 11, wherein a message retrieve service is initially provided to said caller if:

(a) said divert flag is not set and said CLI signal is associated with said call; or

5 (b) said divert flag is not set, said CLI signal is not associated with said call, and identification code is received from said caller during said call, and

in said retrieve service a stored voice message is retrieved and provided to said caller.

10 13. A method of providing a mailbox answerphone service to a caller in a mobile communications system during a call directed to a directory number used commonly by different ones of the system's subscribers to access their mailboxes, wherein said answerphone service identifies a mailbox
15 associated with a subscriber by means of an identification code,

characterised in that said method comprises:

automatically entering either a first mode of answerphone operation if said call is of national origin or a second, different, mode of answerphone operation if said call is of international origin.

20 14. A method according to claim 13, wherein the origin of said call is derived from information received during call establishment.

15. A method according to any preceding claim, wherein said common directory number may be used by all of the system's subscribers to access said answerphone service.

5

16. A method of providing a mailbox answerphone service to a caller in a mobile communications system, wherein said answerphone service identifies a mailbox associated with a subscriber by means of an identification code, said method comprising:

10 receiving a call from a mobile handset, said call being directed to a directory number used commonly by different subscribers to access their mailboxes;

allowing said caller to input a selection indicator during said call; and

(a) if said indicator is not received, detecting a first identification code
15 associated with said mobile handset from information received during call establishment and providing a message retrieve service to allow the caller to retrieve messages from the mailbox associated with said first identification code; or

(b) if said indicator is received, allowing the user to input a second
20 identification code and providing a message retrieve service to allow the caller to retrieve messages from the mailbox associated with said second identification code.

17. A method according to claim 16, wherein each said identification code corresponds to a directory number of a different one of the system's subscribers.

5

18. A method according to claim 16 or 17, further comprising in (a) and/or (b):

prompting said caller for a security code associated with the mailbox being accessed.

10

19. A method according to claim 16, 17 or 18, wherein said indicator comprises a DTMF tone code.

20. A Voice Processing system for a mobile communications system, adapted to perform the method of any of claims 1 to 19.

15

21. Apparatus for use in a mobile communications system, said apparatus being adapted to store messages for subsequent retrieval by a subscriber of the mobile communications system wherein said apparatus is adapted to identify a first subscriber making a call to retrieve a message by means of an identification signal automatically forwarded to said apparatus during call establishment, said signal identifying the equipment being used by

20

said subscriber, and wherein said apparatus is further adapted to identify a second subscriber, on receipt of a request from said second subscriber during said call, by means of other information supplied by said second subscriber during said call.

5

22. Apparatus for use in a mobile communications system, said mobile communications system being arranged to establish a communications link with said apparatus in response to a call by a user, said apparatus being responsive during said call to receipt of a response selection indicator, and to
- 10 receipt of a number of identification codes each being associated with a different mobile subscriber, wherein said apparatus is arranged to select one of said mobile subscribers and/or to select one of a plurality of predetermined responses if said response selection indicator is received, and otherwise to automatically provide a particular response relating to one of said mobile
- 15 subscribers.

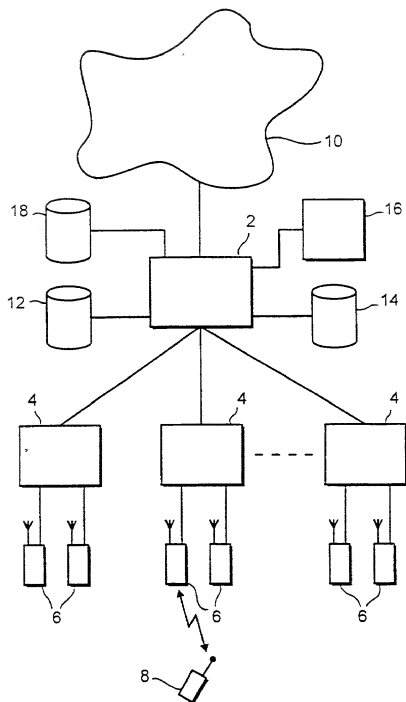


FIG. 1

2 / 5

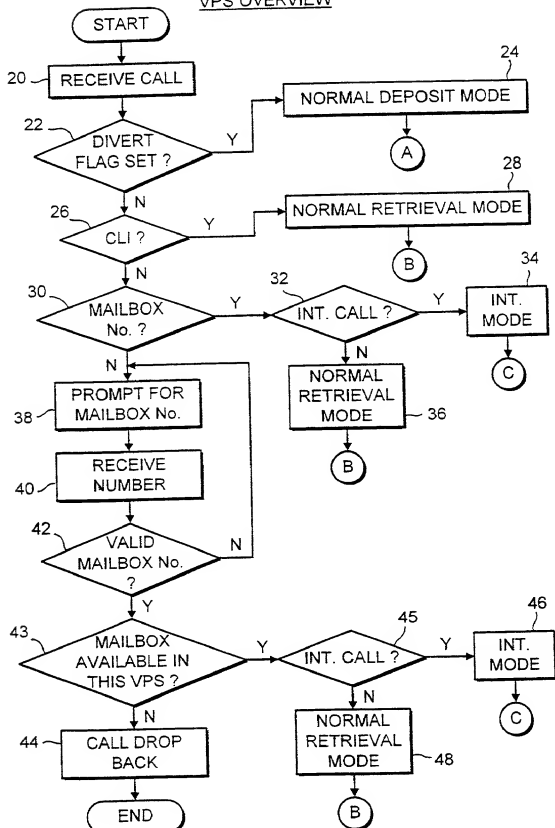
VPS OVERVIEW

FIG. 2

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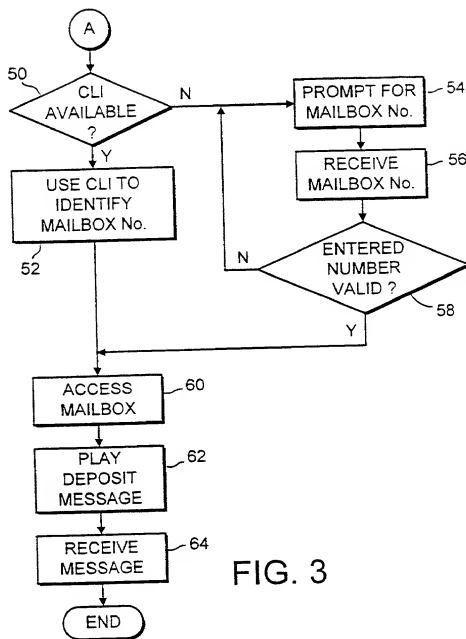
NORMAL DEPOSIT MODE

FIG. 3

4 / 5

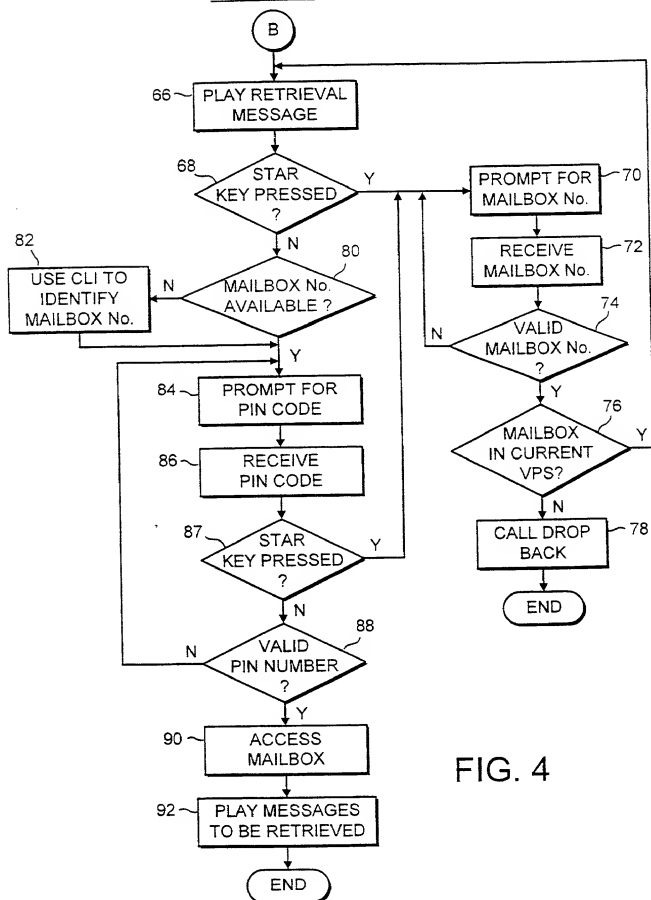
NORMAL RETRIEVAL MODE

FIG. 4

5 / 5

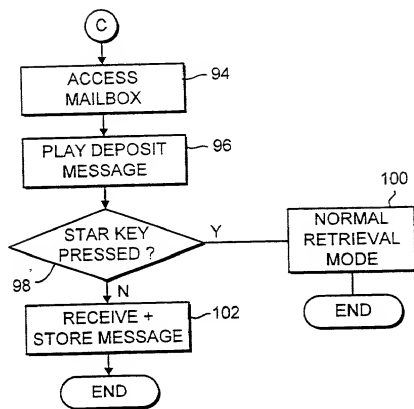
INTERNATIONAL MODE
(DEPOSIT + RETRIEVAL)

FIG. 5

DECLARATION - USA PATENT APPLICATION

As the below named inventor, we hereby declare that:

Our residence, post office address and citizenship are as stated below next to our names;

We believe we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled **MAILBOX ANSWERPHONE SERVICE FOR MOBILE COMMUNICATIONS**

the specification of which

☐ is attached hereto.

☐ was filed on _____ as Application Serial Number _____ and was amended on _____ (if applicable).

☒ was described and claimed in PCT International Application No. PCT/GB98/03622 filed on 4 December 1998 and was amended under PCT Article 19 on _____ (if applicable).

We hereby state that we have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

We acknowledge the duty to disclose information which is material to patentability in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

We hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent, design or inventor's certificate or of any PCT international application(s) listed below and have also identified below any foreign application(s) for patent, design or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed for the same subject matter having a filing date before that of the application of which priority is claimed:

Prior Foreign Application(s)

Country	Application Number	Date of Filing (day, month, year)	Date of Issue (day, month, year)	Priority Claimed Under 37 U.S.C. § 119
GB	9725866.9	5 December 1997		YES

Prior United States Application(s)

We hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, we acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial Number	Date of Filing (Day, Month, Year)	Status — Patented, Pending, Abandoned

KNOBBE MARTENS, OLSON & BEAR, LLP
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We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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**ESTABLISHMENT OF RIGHT OF ASSIGNEE TO TAKE ACTION
AND
REVOCATION AND POWER OF ATTORNEY**

To the Commissioner of Patents and Trademarks:

The undersigned is empowered to act on behalf of the assignee indicated below (the "Assignee"). The original assignment of the attached application for Letters Patent for the invention in MAILBOX ANSWERPHONE SERVICE FOR MOBILE COMMUNICATIONS from the inventors to the Assignee is being submitted herewith for recordation by the Assignment Branch. A true copy of this Assignment is attached hereto. This Assignment represents the entire chain of title of this invention from the Inventor(s) to the Assignee. I have reviewed this Assignment, and to the best of the Assignee's knowledge and belief, the Assignee is the owner of the entire right, title, and interest in the above-referenced application.

I declare that all statements made herein of my own knowledge are true, and that all statements made upon information and belief are believed to be true, and further, that these statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001, and that willful, false statements may jeopardise the validity of the application, or any patent issuing thereon.

The undersigned hereby revokes any previous powers of attorney in the subject application, and hereby appoints the registrants of Knobbe, Martens, Olson & Bear, LLP, 620 Newport Centre Drive, Sixteenth Floor, Newport Beach, California 92660, Telephone (949) 760-0404, **Customer No. 20,995**, as its attorneys with full power of substitution and revocation to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected herewith. This appointment is to be to the exclusion of the inventor(s) and his attorney(s) in accordance with the provisions of 37 C.F.R. § 3.71.

Please use **Customer No. 20,995** for all communications.

Assignee: ORANGE PERSONAL
COMMUNICATIONS SERVICES LTD.

By: 

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Dated: 21 August, 2000

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